

# Metadata Report

Project Name *Geologic Fold at Painted Canyon near the San Andreas Fault, Southern California, September 2018*

## Summary

The Painted Canyon site is located in the Mecca Hills adjacent to the Southern San Andreas Fault. The site records plate-boundary transpression in a set of folds and faults. We imaged a fold along a canyon wall in Painted Canyon. We collected this dataset to be part of a undergraduate or graduate structural geology class exercise. In this exercise, students measure and analyze the fold using the point cloud, CloudCompare, and Stereonet. The students put their measurements in terms of the kinematics of the San Andreas Fault.



## Personnel

- PI: Chelsea Scott (Arizona State University)
- Field staff: Grace Carlson (Arizona State University)

## Site Information

- Site description & objective: We imaged a geologic fold that forms a canyon wall at the classic Painted Canyon site.
- Latitude and longitude of the field site: 33.6131°, -116.0056 °

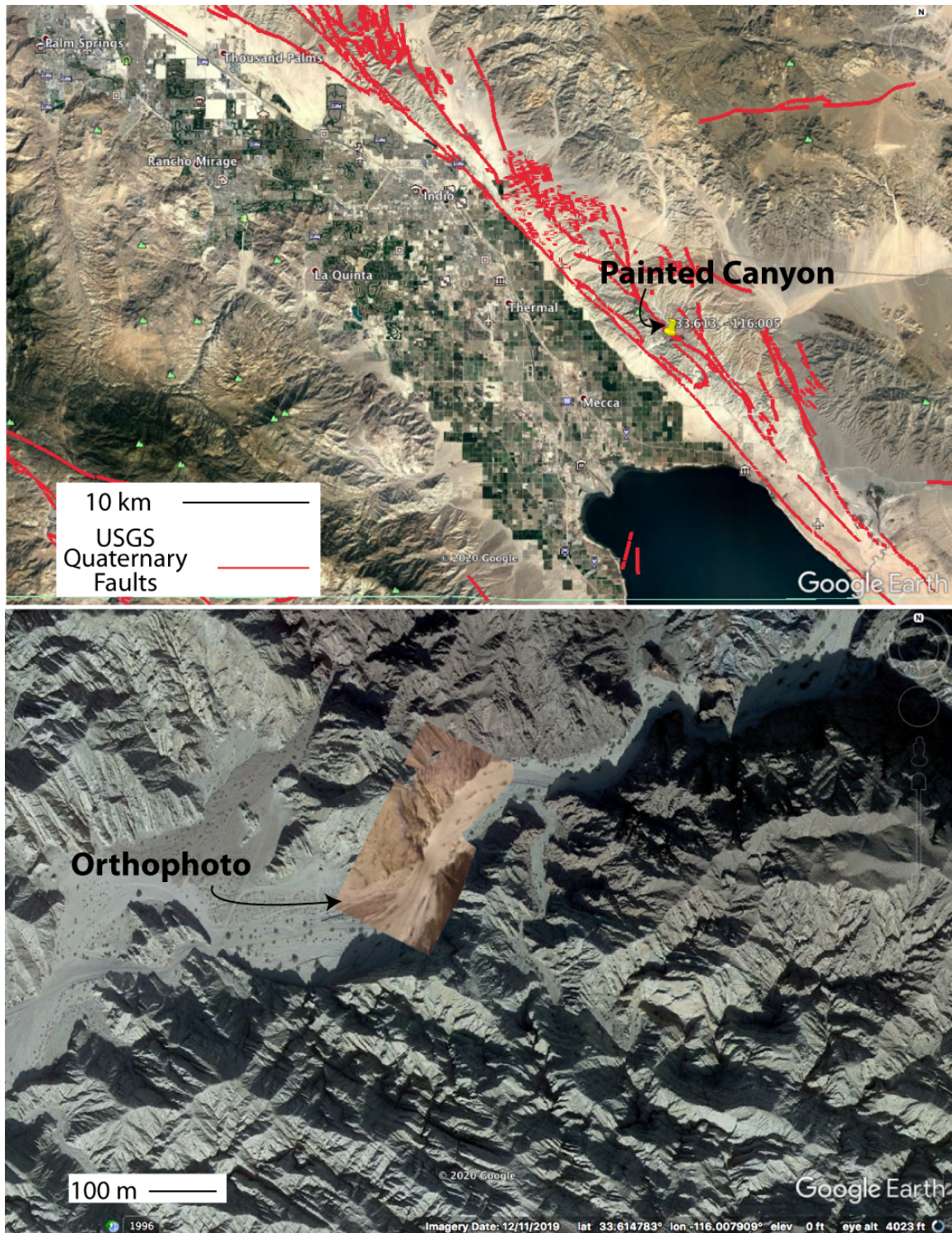


Figure 1: (Top) Painted Canyon and Quaternary faults from the USGS. (Bottom) UAV orthophoto superimposed on Google Earth.

- Site conditions: The weather was very sunny and the temperature was over 100° F. Wind was minimal inside the canyon.
- Date/time spent at each site: We acquired this imagery over a few hour period in the early afternoon.

### Survey Results

- Equipment used: A Phantom 4 Pro UAV.
- GPS solutions: We used the onboard GPS.
- Collection methods: To image the canyon wall, we angled the UAV's camera at 30-60° from nadir. Manually, we flew the UAV up and down the canyon imaging a different portion of the canyon each time it travelled up or down. The UAV was typically ~5 m away from the canyon. We flew to a maximum altitude of 110 m above ground level of the canyon floor.

### Products

- Date of dataset collection: September 9, 2018
- Coordinate system of datasets: WGS84/ UTM 11N [EPSG 32611], Vertical: WGS84 Ellipsoid (DJI GPS locations)
- Spatial resolution: 123 pts/m<sup>2</sup>.
- Horizontal Accuracy: The Agisoft report indicates mean horizontal error of 0.78 m.
- Vertical Accuracy The Agisoft report indicates mean vertical error of 2.00 m.
- Data formats: We are submitting a point cloud in laz format.
- Data processing methods: We processed the point cloud using Agisoft Photoscan using medium settings.